

VENTURA COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 74.11 - NATURAL GAS-FIRED RESIDENTIAL WATER HEATERS - CONTROL OF NO_x

(Adopted 4/9/85)

The provisions of this rule shall apply to any person selling, offering for sale, or installing natural gas-fired residential water heaters in Ventura County.

A. Requirements

After December 31, 1985, a person shall not sell, offer for sale, or install in Ventura County any natural gas-fired residential water heater that:

1. Emits nitrogen oxides in excess of 40 nanograms of NO_x (calculated as NO₂) per joule of heat output (93 lb per billion BTU), and
2. Is not certified in accordance with Section B.

B. Certification

1. Testing

The manufacturer shall have each water heater model tested in accordance with the following procedures:

- (a) Each tested water heater shall be operated in accordance with Section 2.4 of American National Standards ANSI Z21.10.1-1975 at normal test pressure, input rates, and with a five-foot exhaust stack installed during the nitrogen oxides emission tests, and
- (b) The measurement of nitrogen oxides emissions shall be conducted in accordance with US EPA test methods or other test methods approved by the APCO.

2. Calculations

The following procedure shall be used to calculate the NO_x emission rate in nanograms of NO_x per joule of heat output:

$$N = (4.566 \times 10^4 \times P \times U) / (H \times C \times E)$$

Where:

N = nanograms of NO_x emitted per joule of heat output
P = parts per million (volume) of NO_x in the flue gas

U = volume percent of CO₂ in water-free flue gas for stoichiometric combustion

H = gross heating value of gas, BTU/cu. ft. (at 60° F. and 30" Hg.)

C = volume percent of CO₂ in water-free flue gas

E = recovery efficiency, percentage

3. Compliance Report

The manufacturer shall submit to the APCO a Compliance Report by December 1, 1985 which contains the following information for each water heater subject to the provisions of this rule:

(a) General Information

- (1) Name and address of manufacturer,
- (2) Brand name of water heater,
- (3) Model number, as it appears on the water heater rating plate, and
- (4) Description of each model water heater being certified.

(b) Test Report

- (1) All data from compliance testing of water heater, and
- (2) All calculations for determining compliance of the water heater

(c) Compliance Statement

A signed and dated statement attesting to the accuracy of all statements and information in the Compliance Report.

A manufacturer shall submit a new Compliance Report for any water heater whose design is changed in any manner which may alter the emissions from the water heater. New Compliance Reports, for either altered models or new models, shall be submitted to the APCO at least 30 days before the water heater is offered for sale in Ventura County.

C. Identification of Complying Water Heaters

The water heater manufacturer shall display the model number of the water heater subject to the provisions of this rule on the shipping carton and rating plate.

D. Enforcement

1. The APCO may require that the emission test results be provided when deemed necessary to verify compliance.
2. The APCO may periodically inspect distributors, retailers, and installers of water heaters located in the District and conduct such tests as are deemed necessary to insure compliance with the provisions of this rule.

E. Exemptions

The provisions of this rule shall not apply to:

1. Water heaters with a rated heat input of 75,000 BTU per hour or greater.
2. Water heaters used in recreational vehicles.
3. Water heaters installed in mobile homes constructed in compliance with Title 24 CFR Part 3280 - Manufactured Home Construction and Safety Standards.

F. Definitions

For the purposes of this rule the following definitions shall apply:

1. "Water heater" is defined as a device that heats water at a thermostatically-controlled temperature for delivery on demand.
2. "Heat output" is defined as the product obtained by multiplying the recovery efficiency, as defined by Title 20, California Administrative Code, Chapter 2, Subchapter 4, Article 4, Section 1603 and 1607, by the heating value of the input fuel furnished to the water heater.